SEQUENCE LISTING

<110> Cadet, Patrick
       Stefano, George B.

<120> Opiate Receptors

<130> 09598-006001

<140> US 10/080,917
<141> 2002-02-22

<150> US 60/270,479
<151> 2001-02-22

<150> US 60/336,677
<151> 2001-12-05

<160> 29

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 81
<212> DNA
<213> Homo Sapiens

<400> 1
aattattata taattcatag atgttgctgc aatacccctc ttatttctca aaagccagtc   60
ttgctctggt tctgtgatta a   81

<210> 2
<211> 26
<212> PRT
<213> Homo Sapiens

<220>
<223> Peptide fragment

<400> 2
Asn Tyr Tyr Ile Ile His Arg Leu Cys Cys Asn Thr Pro Leu Ile Ser
 1   5   10   15
Gln Lys Pro Val Leu Leu Trp Phe Cys Asp
            20   25

<210> 3
<211> 262
<212> DNA
<213> Homo Sapiens

<220>
<221> misc_feature
<222> (1)...(262)
<223> n = A,T,C or G

<400> 3

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aattattata taattcatag atgttgctgc aatacccctc ttatttctca aaagccagtc          60
ttgctctggt tctgtgatta aagagagagg gtgagtgcct tgcccactgt ggtcatggat         120
gcaagatatt cacagaaaat tagcatcata gaaaaaaaan nnaaaaaaaa aaaaaaaaaa         180
ncatgtcggc cgcctcggcc aaacatcggg tcgagcatgc atctagggcg gccaattccg         240
cccctctccc ccccngcnnt tt                                                  262
```

<210> 4
<211> 945
<212> DNA
<213> Homo Sapiens

<400> 4

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atgaagactg ccaccaacat ctacattttc aaccttgctc tggcagatgc cttagccacc          60
agtaccctgc ccttccagag tgtgaattac ctaatgggaa catggccatt tggaaccatc         120
ctttgcaaga tagtgatctc catagattac tataacatgt tcaccagcat attcaccctc         180
tgcaccatga gtgttgatcg atacattgca gtctgccacc ctgtcaaggc cttagatttc         240
cgtactcccc gaaatgccaa aattatcaat gtctgcaact ggatcctctc ttcagccatt         300
ggtcttcctg taatgttcat ggctacaaca aaatacaggc aaggttccat agattgtaca         360
ctaacattct ctcatccaac ctggtactgg gaaaacctgc tgaagatctg tgttttcatc         420
ttcgccttca ttatgccagt gctcatcatt accgtgtgct atggactgat gatcttgcgc         480
ctcaagagtg tccgcatgct ctctggctcc aaagaaaagg acaggaatct tcgaaggatc         540
accaggatgg tgctggtggt ggtggctgtg ttcatcgtct gctggactcc cattcacatt         600
tacgtcatca ttaaagcctt ggttacaatc ccagaaacta cgttccagac tgtttcttgg         660
cacttctgca ttgctctagg ttacacaaac agctgcctca cccagtcct ttatgcattt         720
ctggatgaaa acttcaaacg atgcttcaga gagttctgta tcccaacctc ttccaacatt         780
gagcaacaaa actccactcg aattcgtcag aacactagag accaccccctc cacggccaat         840
acagtggata gaactaatca tcagaattat tatataattc atagatgttg ctgcaatacc         900
cctcttattt ctcaaaagcc agtcttgctc tggttctgtg attaa                         945
```

<210> 5
<211> 314
<212> PRT
<213> Homo Sapiens

<400> 5

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Met Lys Thr Ala Thr Asn Ile Tyr Ile Phe Asn Leu Ala Leu Ala Asp
1               5                   10                  15
Ala Leu Ala Thr Ser Thr Leu Pro Phe Gln Ser Val Asn Tyr Leu Met
            20                  25                  30
Gly Thr Trp Pro Phe Gly Thr Ile Leu Cys Lys Ile Val Ile Ser Ile
        35                  40                  45
Asp Tyr Tyr Asn Met Phe Thr Ser Ile Phe Thr Leu Cys Thr Met Ser
    50                  55                  60
Val Asp Arg Tyr Ile Ala Val Cys His Pro Val Lys Ala Leu Asp Phe
65                  70                  75                  80
Arg Thr Pro Arg Asn Ala Lys Ile Ile Asn Val Cys Asn Trp Ile Leu
                85                  90                  95
Ser Ser Ala Ile Gly Leu Pro Val Met Phe Met Ala Thr Thr Lys Tyr
            100                 105                 110
Arg Gln Gly Ser Ile Asp Cys Thr Leu Thr Phe Ser His Pro Thr Trp
        115                 120                 125
Tyr Trp Glu Asn Leu Leu Lys Ile Cys Val Phe Ile Phe Ala Phe Ile
    130                 135                 140
Met Pro Val Leu Ile Ile Thr Val Cys Tyr Gly Leu Met Ile Leu Arg
145                 150                 155                 160
Leu Lys Ser Val Arg Met Leu Ser Gly Ser Lys Glu Lys Asp Arg Asn
```

```
                   165                    170                    175
Leu Arg Arg Ile Thr Arg Met Val Leu Val Val Val Ala Val Phe Ile
            180                    185                    190
Val Cys Trp Thr Pro Ile His Ile Tyr Val Ile Ile Lys Ala Leu Val
        195                    200                    205
Thr Ile Pro Glu Thr Thr Phe Gln Thr Val Ser Trp His Phe Cys Ile
    210                    215                    220
Ala Leu Gly Tyr Thr Asn Ser Cys Leu Asn Pro Val Leu Tyr Ala Phe
225                    230                    235                    240
Leu Asp Glu Asn Phe Lys Arg Cys Phe Arg Glu Phe Cys Ile Pro Thr
                245                    250                    255
Ser Ser Asn Ile Glu Gln Gln Asn Ser Thr Arg Ile Arg Gln Asn Thr
            260                    265                    270
Arg Asp His Pro Ser Thr Ala Asn Thr Val Asp Arg Thr Asn His Gln
        275                    280                    285
Asn Tyr Tyr Ile Ile His Arg Leu Cys Cys Asn Thr Pro Leu Ile Ser
    290                    295                    300
Gln Lys Pro Val Leu Leu Trp Phe Cys Asp
305                    310
```

```
<210> 6
<211> 1431
<212> DNA
<213> Homo Sapiens

<400> 6
atgtcagatg ctcagctcgg tcccctccgc ctgacgctcc tctctgtctc agccaggact      60
ggtttctgta agaaacagca ggagctgtgg cagcggcgaa aggaagcggc tgaggcgctt     120
ggaacccgaa aagtctcggt gctcctggct acctcgcaca gcggtgcccg cccggccgtc     180
agtaccatgg acagcagcgc tgcccccacg aacgccagca attgcactga tgccttggcg     240
tactcaagtt gctccccagc acccagcccc ggttcctggg tcaacttgtc ccacttagat     300
ggcaacctgt ccgacccatg cggtccgaac cgcaccgacc tgggcgggag agacagcctg     360
tgccctccga ccggcagtcc ctccatgatc acggccatca cgatcatggc cctctactcc     420
atcgtgtgcg tggtggggct cttcggaaac ttcctggtca tgtatgtgat tgtcagatac     480
accaagatga agactgccac caacatctac attttcaacc ttgctctggc agatgcctta     540
gccaccagta ccctgccctt ccagagtgtg aattacctaa tgggaacatg gccatttgga     600
accatccttt gcaagatagt gatctccata gattactata acatgttcac cagcatattc     660
accctctgca ccatgagtgt tgatcgatac attgcagtct gccaccctgt caaggcctta     720
gatttccgta ctccccgaaa tgccaaaatt atcaatgtct gcaactggat cctctcttca     780
gccattggtc ttcctgtaat gttcatggct acaacaaaat acaggcaagg ttccatagat     840
tgtacactaa cattctctca tccaacctgg tactgggaaa acctgctgaa gatctgtgtt     900
ttcatcttcg ccttcattat gccagtgctc atcattaccg tgtgctatgg actgatgatc     960
ttgcgcctca gagtgtccg catgctctct ggctccaaag aaaaggacag gaatcttcga    1020
aggatcacca ggatggtgct ggtggtggtg ctgtgttca tcgtctgctg gactcccatt    1080
cacatttacg tcatcattaa agccttggtt acaatcccag aaactacgtt ccagactgtt    1140
tcttggcact ctgcattgc tctaggttac acaaacagct gcctcaaccc agtcctttat    1200
gcatttctgg atgaaaactt caaacgatgc ttcagagagt tctgtatccc aacctcttcc    1260
aacattgagc aacaaaactc cactcgaatt cgtcagaaca ctagagacca ccctccacg    1320
gccaatacag tggatagaac taatcatcag aattattata taattcatag atgttgctgc    1380
aataccccctc ttatttctca aaagccagtc ttgctctggt tctgtgatta a           1431

<210> 7
<211> 476
<212> PRT
<213> Homo Sapiens

<400> 7
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Met Ser Asp Ala Gln Leu Gly Pro Leu Arg Leu Thr Leu Leu Ser Val
 1           5                   10                  15
Ser Ala Arg Thr Gly Phe Cys Lys Lys Gln Gln Glu Leu Trp Gln Arg
            20                  25                  30
Arg Lys Glu Ala Ala Glu Ala Leu Gly Thr Arg Lys Val Ser Val Leu
        35              40                  45
Leu Ala Thr Ser His Ser Gly Ala Arg Pro Ala Val Ser Thr Met Asp
    50                  55                  60
Ser Ser Ala Ala Pro Thr Asn Ala Ser Asn Cys Thr Asp Ala Leu Ala
65              70                  75                      80
Tyr Ser Ser Cys Ser Pro Ala Pro Ser Pro Gly Ser Trp Val Asn Leu
            85                  90                  95
Ser His Leu Asp Gly Asn Leu Ser Asp Pro Cys Gly Pro Asn Arg Thr
        100             105                 110
Asp Leu Gly Gly Arg Asp Ser Leu Cys Pro Pro Thr Gly Ser Pro Ser
        115             120                 125
Met Ile Thr Ala Ile Thr Ile Met Ala Leu Tyr Ser Ile Val Cys Val
    130             135                 140
Val Gly Leu Phe Gly Asn Phe Leu Val Met Tyr Val Ile Val Arg Tyr
145             150                 155                 160
Thr Lys Met Lys Thr Ala Thr Asn Ile Tyr Ile Phe Asn Leu Ala Leu
            165                 170                 175
Ala Asp Ala Leu Ala Thr Ser Thr Leu Pro Phe Gln Ser Val Asn Tyr
        180                 185                 190
Leu Met Gly Thr Trp Pro Phe Gly Thr Ile Leu Cys Lys Ile Val Ile
        195                 200                 205
Ser Ile Asp Tyr Tyr Asn Met Phe Thr Ser Ile Phe Thr Leu Cys Thr
    210                 215                 220
Met Ser Val Asp Arg Tyr Ile Ala Val Cys His Pro Val Lys Ala Leu
225                 230                 235                 240
Asp Phe Arg Thr Pro Arg Asn Ala Lys Ile Ile Asn Val Cys Asn Trp
            245                 250                 255
Ile Leu Ser Ser Ala Ile Gly Leu Pro Val Met Phe Met Ala Thr Thr
        260                 265                 270
Lys Tyr Arg Gln Gly Ser Ile Asp Cys Thr Leu Thr Phe Ser His Pro
    275                 280                 285
Thr Trp Tyr Trp Glu Asn Leu Leu Lys Ile Cys Val Phe Ile Phe Ala
    290                 295                 300
Phe Ile Met Pro Val Leu Ile Ile Thr Val Cys Tyr Gly Leu Met Ile
305             310                 315                     320
Leu Arg Leu Lys Ser Val Arg Met Leu Ser Gly Ser Lys Glu Lys Asp
            325                 330                 335
Arg Asn Leu Arg Arg Ile Thr Arg Met Val Leu Val Val Val Ala Val
            340                 345                 350
Phe Ile Val Cys Trp Thr Pro Ile His Ile Tyr Val Ile Ile Lys Ala
        355                 360                 365
Leu Val Thr Ile Pro Glu Thr Thr Phe Gln Thr Val Ser Trp His Phe
    370                 375                 380
Cys Ile Ala Leu Gly Tyr Thr Asn Ser Cys Leu Asn Pro Val Leu Tyr
385                 390                 395                 400
Ala Phe Leu Asp Glu Asn Phe Lys Arg Cys Phe Arg Glu Phe Cys Ile
            405                 410                 415
Pro Thr Ser Ser Asn Ile Glu Gln Gln Asn Ser Thr Arg Ile Arg Gln
            420                 425                 430
Asn Thr Arg Asp His Pro Ser Thr Ala Asn Thr Val Asp Arg Thr Asn
            435                 440                 445
His Gln Asn Tyr Tyr Ile Ile His Arg Leu Cys Cys Asn Thr Pro Leu
```

```
      450                        455                        460
Ile Ser Gln Lys Pro Val Leu Leu Trp Phe Cys Asp
465                        470                        475
```

<210> 8
<211> 1245
<212> DNA
<213> Homo Sapiens

<400> 8

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atggacagca gcgctgcccc cacgaacgcc agcaattgca ctgatgcctt ggcgtactca      60
agttgctccc cagcacccag ccccggttcc tgggtcaact tgtcccactt agatggcaac     120
ctgtccgacc catgcggtcc gaaccgcacc gacctgggcg ggagagacag cctgtgccct     180
ccgaccggca gtccctccat gatcacggcc atcacgatca tggccctcta ctccatcgtg     240
tgcgtggtgg ggctcttcgg aaacttcctg gtcatgtatg tgattgtcag atacaccaag     300
atgaagactg ccaccaacat ctacattttc aaccttgctc tggcagatgc cttagccacc     360
agtaccctgc ccttccagag tgtgaattac ctaatgggaa catggccatt tggaaccatc     420
ctttgcaaga tagtgatctc catagattac tataacatgt tcaccagcat attcaccctc     480
tgcaccatga gtgttgatcg atacattgca gtctgccacc ctgtcaaggc cttagatttc     540
cgtactcccc gaaatgccaa aattatcaat gtctgcaact ggatcctctc ttcagccatt     600
ggtcttcctg taatgttcat ggctacaaca aaatacaggc aaggttccat agattgtaca     660
ctaacattct ctcatccaac ctggtactgg gaaaacctgc tgaagatctg tgttttcatc     720
ttcgccttca ttatgccagt gctcatcatt accgtgtgct atggactgat gatcttgcgc     780
ctcaagagtg tccgcatgct ctctggctcc aaagaaaagg acaggaatct tcgaaggatc     840
accaggatgg tgctggtggt ggtggctgtg ttcatcgtct gctggactcc cattcacatt     900
tacgtcatca ttaaagcctt ggttacaatc ccagaaacta cgttccagac tgtttcttgg     960
cacttctgca ttgctctagg ttacacaaac agctgcctca cccagtcctt tatgcattt    1020
ctggatgaaa acttcaaacg atgcttcaga gagttctgta tcccaacctc ttccaacatt    1080
gagcaacaaa actccactcg aattcgtcag aacactagag accacccctc cacggccaat    1140
acagtggata gaactaatca tcagaattat tatataattc atagatgttg ctgcaatacc    1200
cctcttattt ctcaaaagcc agtcttgctc tggttctgtg attaa                    1245
```

<210> 9
<211> 414
<212> PRT
<213> Homo Sapiens

<400> 9

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Met Asp Ser Ser Ala Ala Pro Thr Asn Ala Ser Asn Cys Thr Asp Ala
 1               5                  10                  15
Leu Ala Tyr Ser Ser Cys Ser Pro Ala Pro Ser Pro Gly Ser Trp Val
            20                  25                  30
Asn Leu Ser His Leu Asp Gly Asn Leu Ser Asp Pro Cys Gly Pro Asn
            35                  40                  45
Arg Thr Asp Leu Gly Gly Arg Asp Ser Leu Cys Pro Pro Thr Gly Ser
        50                  55                  60
Pro Ser Met Ile Thr Ala Ile Thr Ile Met Ala Leu Tyr Ser Ile Val
65                  70                  75                  80
Cys Val Val Gly Leu Phe Gly Asn Phe Leu Val Met Tyr Val Ile Val
                85                  90                  95
Arg Tyr Thr Lys Met Lys Thr Ala Thr Asn Ile Tyr Ile Phe Asn Leu
            100                 105                 110
Ala Leu Ala Asp Ala Leu Ala Thr Ser Thr Leu Pro Phe Gln Ser Val
            115                 120                 125
Asn Tyr Leu Met Gly Thr Trp Pro Phe Gly Thr Ile Leu Cys Lys Ile
        130                 135                 140
Val Ile Ser Ile Asp Tyr Tyr Asn Met Phe Thr Ser Ile Phe Thr Leu
```

```
145                     150                     155                     160
Cys Thr Met Ser Val Asp Arg Tyr Ile Ala Val Cys His Pro Val Lys
                165                     170                     175
Ala Leu Asp Phe Arg Thr Pro Arg Asn Ala Lys Ile Ile Asn Val Cys
            180                     185                     190
Asn Trp Ile Leu Ser Ser Ala Ile Gly Leu Pro Val Met Phe Met Ala
        195                     200                     205
Thr Thr Lys Tyr Arg Gln Gly Ser Ile Asp Cys Thr Leu Thr Phe Ser
    210                     215                     220
His Pro Thr Trp Tyr Trp Glu Asn Leu Leu Lys Ile Cys Val Phe Ile
225                     230                     235                     240
Phe Ala Phe Ile Met Pro Val Leu Ile Ile Thr Val Cys Tyr Gly Leu
                245                     250                     255
Met Ile Leu Arg Leu Lys Ser Val Arg Met Leu Ser Gly Ser Lys Glu
                260                     265                     270
Lys Asp Arg Asn Leu Arg Arg Ile Thr Arg Met Val Leu Val Val Val
                275                     280                     285
Ala Val Phe Ile Val Cys Trp Thr Pro Ile His Ile Tyr Val Ile Ile
    290                     295                     300
Lys Ala Leu Val Thr Ile Pro Glu Thr Thr Phe Gln Thr Val Ser Trp
305                     310                     315                     320
His Phe Cys Ile Ala Leu Gly Tyr Thr Asn Ser Cys Leu Asn Pro Val
                325                     330                     335
Leu Tyr Ala Phe Leu Asp Glu Asn Phe Lys Arg Cys Phe Arg Glu Phe
                340                     345                     350
Cys Ile Pro Thr Ser Ser Asn Ile Glu Gln Gln Asn Ser Thr Arg Ile
                355                     360                     365
Arg Gln Asn Thr Arg Asp His Pro Ser Thr Ala Asn Thr Val Asp Arg
    370                     375                     380
Thr Asn His Gln Asn Tyr Tyr Ile Ile His Arg Leu Cys Cys Asn Thr
385                     390                     395                     400
Pro Leu Ile Ser Gln Lys Pro Val Leu Leu Trp Phe Cys Asp
            405                     410
```

```
<210> 10
<211> 1239
<212> DNA
<213> Rattus norvegicus
```

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<400> 10
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agttgctccc cagcacctgg ctcctgggtc aacttgtccc acttagatgg caacctgtcc     120
gacccatgcg gtccgaaccg caccgacctg ggcgggagag acagcctgtg ccctccgacc     180
ggcagtccct ccatgatcac ggccatcacg atcatggccc tctactccat cgtgtgcgtg     240
gtggggctct tcggaaactt cctggtcatg tatgtgattg tcagatacac caagatgaag     300
actgccacca acatctacat tttcaacctt gctctggcag atgccttagc caccagtacc     360
ctgcccttcc agagtgtgaa ttacctaatg ggaacatggc catttggaac catcctttgc     420
aagatagtga tctccataga ttactataac atgttcacca gcatattcac cctctgcacc     480
atgagtgttg atcgatacat tgcagtctgc caccctgtca aggccttaga tttccgtact     540
ccccgaaatg ccaaaattat caatgtctgc aactggatcc tctcttcagc cattggtctt     600
cctgtaatgt tcatggctac aacaaaatac aggcaaggtt ccatagattg tacactaaca     660
ttctctcatc caacctggta ctgggaaaac ctgctgaaga tctgtgtttt catcttcgcc     720
ttcattatgc cagtgctcat cattaccgtg tgctatggac tgatgatctt gcgcctcaag     780
agtgtccgca tgctctctgg ctccaaagaa aaggacagga tcttcgaag gatcaccagg     840
atggtgctgg tggtggtggc tgtgttcatc gtctgctgga ctcccattca catttacgtc     900
atcattaaag ccttggttac aatcccagaa actacgttcc agactgtttc ttggcacttc     960
tgcattgctc taggttacac aaacagctgc ctcaacccag tcctttatgc atttctggat    1020
```

```
gaaaacttca aacgatgctt cagagagttc tgtatcccaa cctcttccaa cattgagcaa      1080
caaaactcca ctcgaattcg tcagaacact agagaccacc cctccacggc caatacagtg      1140
gatagaacta atcatcagaa ttattatata attcatagat gttgctgcaa tacccctctt      1200
atttctcaaa agccagtctt gctctggttc tgtgattaa                            1239
```

```
<210> 11
<211> 412
<212> PRT
<213> Rattus norvegicus

<400> 11
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```
Met Asp Ser Ser Thr Gly Pro Gly Asn Thr Ser Asp Cys Ser Asp Pro
 1               5                  10                  15
Leu Ala Gln Ala Ser Cys Ser Pro Ala Pro Gly Ser Trp Val Asn Leu
            20                  25                  30
Ser His Leu Asp Gly Asn Leu Ser Asp Pro Cys Gly Pro Asn Arg Thr
            35                  40                  45
Asp Leu Gly Gly Arg Asp Ser Leu Cys Pro Pro Thr Gly Ser Pro Ser
        50                  55                  60
Met Ile Thr Ala Ile Thr Ile Met Ala Leu Tyr Ser Ile Val Cys Val
65                  70                  75                  80
Val Gly Leu Phe Gly Asn Phe Leu Val Met Tyr Val Ile Val Arg Tyr
                85                  90                  95
Thr Lys Met Lys Thr Ala Thr Asn Ile Tyr Ile Phe Asn Leu Ala Leu
            100                 105                 110
Ala Asp Ala Leu Ala Thr Ser Thr Leu Pro Phe Gln Ser Val Asn Tyr
            115                 120                 125
Leu Met Gly Thr Trp Pro Phe Gly Thr Ile Leu Cys Lys Ile Val Ile
            130                 135                 140
Ser Ile Asp Tyr Tyr Asn Met Phe Thr Ser Ile Phe Thr Leu Cys Thr
145                 150                 155                 160
Met Ser Val Asp Arg Tyr Ile Ala Val Cys His Pro Val Lys Ala Leu
                165                 170                 175
Asp Phe Arg Thr Pro Arg Asn Ala Lys Ile Ile Asn Val Cys Asn Trp
                180                 185                 190
Ile Leu Ser Ser Ala Ile Gly Leu Pro Val Met Phe Met Ala Thr Thr
            195                 200                 205
Lys Tyr Arg Gln Gly Ser Ile Asp Cys Thr Leu Thr Phe Ser His Pro
    210                 215                 220
Thr Trp Tyr Trp Glu Asn Leu Leu Lys Ile Cys Val Phe Ile Phe Ala
225                 230                 235                 240
Phe Ile Met Pro Val Leu Ile Ile Thr Val Cys Tyr Gly Leu Met Ile
            245                 250                 255
Leu Arg Leu Lys Ser Val Arg Met Leu Ser Gly Ser Lys Glu Lys Asp
            260                 265                 270
Arg Asn Leu Arg Arg Ile Thr Arg Met Val Leu Val Val Val Ala Val
            275                 280                 285
Phe Ile Val Cys Trp Thr Pro Ile His Ile Tyr Val Ile Ile Lys Ala
    290                 295                 300
Leu Val Thr Ile Pro Glu Thr Thr Phe Gln Thr Val Ser Trp His Phe
305                 310                 315                 320
Cys Ile Ala Leu Gly Tyr Thr Asn Ser Cys Leu Asn Pro Val Leu Tyr
            325                 330                 335
Ala Phe Leu Asp Glu Asn Phe Lys Arg Cys Phe Arg Glu Phe Cys Ile
            340                 345                 350
Pro Thr Ser Ser Asn Ile Glu Gln Gln Asn Ser Thr Arg Ile Arg Gln
            355                 360                 365
```

```
Asn Thr Arg Asp His Pro Ser Thr Ala Asn Thr Val Asp Arg Thr Asn
    370             375             380
His Gln Asn Tyr Tyr Ile Ile His Arg Leu Cys Cys Asn Thr Pro Leu
385             390             395             400
Ile Ser Gln Lys Pro Val Leu Leu Trp Phe Cys Asp
            405             410
```

```
<210> 12
<211> 2149
<212> DNA
<213> Homo Sapiens

<400> 12
gagggggcta tacgcagagg agaatgtcag atgctcagct cggtcccctc cgcctgacgc      60
tcctctctgt ctcagccagg actggtttct gtaagaaaca gcaggagctg tggcagcggc     120
gaaaggaagc ggctgaggcg cttggaaccc gaaaagtctc ggtgctcctg gctacctcgc     180
acagcggtgc ccgcccggcc gtcagtacca tggacagcag cgctgccccc acgaacgcca     240
gcaattgcac tgatgccttg gcgtactcaa gttgctcccc agcacccagc cccggttcct     300
gggtcaactt gtcccactta gatggcaacc tgtccgaccc atgcggtccg aaccgcaccg     360
acctgggcgg gagagacagc ctgtgccctc cgaccggcag tccctccatg atcacggcca     420
tcacgatcat ggccctctac tccatcgtgt gcgtggtggg gctcttcgga aacttcctgg     480
tcatgtatgt gattgtcaga tacaccaaga tgaagactgc caccaacatc tacattttca     540
accttgctct ggcagatgcc ttagccacca gtaccctgcc cttccagagt gtgaattacc     600
taatgggaac atggccattt ggaaccatcc tttgcaagat agtgatctcc atagattact     660
ataacatgtt caccagcata ttcaccctct gcaccatgag tgttgatcga tacattgcag     720
tctgccaccc tgtcaaggcc ttagatttcc gtactccccg aaatgccaaa attatcaatg     780
tctgcaactg gatcctctct tcagccattg gtcttcctgt aatgttcatg gctacaacaa     840
aatacaggca aggttccata gattgtacac taacattctc tcatccaacc tggtactggg     900
aaaacctgct gaagatctgt gttttcatct tcgccttcat tatgccagtg ctcatcatta     960
ccgtgtgcta tggactgatg atcttgcgcc tcaagagtgt ccgcatgctc tctggctcca    1020
aagaaaagga caggaatctt cgaaggatca ccaggatggt gctggtggtg gtggctgtgt    1080
tcatcgtctg ctggactccc attcacattt acgtcatcat taaagccttg gttacaatcc    1140
cagaaactac gttccagact gtttcttggc acttctgcat tgctctaggt tacacaaaca    1200
gctgcctcaa cccagtcctt tatgcatttc tggatgaaaa cttcaaacga tgcttcagag    1260
agttctgtat cccaacctct tccaacattg agcaacaaaa ctccactcga attcgtcaga    1320
acactagaga ccacccctcc acggccaata cagtggatag aactaatcat cagctagaaa    1380
atctggaagc agaaactgct ccgttgccct aacagggtct catgccattc cgaccttcac    1440
caagcttaga agccaccatg tatgtggaag caggttgctt caagaatgtg taggaggctc    1500
taattctcta ggaaagtgcc tgcttttagg tcatccaacc tctttcctct ctggccactc    1560
tgctctgcac attagaggga cagccaaaag taagtggagc atttggaagg aaaggaatat    1620
accacaccga ggagtccagt ttgtgcaaga cacccagtgg aaccaaaacc catcgtggta    1680
tgtgaattga agtcatcata aaaggtgacc cttctgtctg taagatttta ttttcaagca    1740
aatatttatg acctcaacaa agaagaacca tcttttgtta agttcaccgt agtaacacat    1800
aaagtaaatg ctacctctga tcaaagcacc ttgaatggaa ggtccgagtc tttttagtgt    1860
tttgcaaggg aatgaatcca ttattctatt ttagactttt aacttcacct taaaattagc    1920
atctggctaa ggcatcattt tcacctccat ttcttggttt tgtattgttt aaaaaaataa    1980
catctctttc atctagctcc ataattgcaa gggaagagat tagcatgaaa ggtaatctga    2040
aacacagtca tgtgtcagct gtagaaaggt tgattctcat gcactgcaaa tacttccaaa    2100
gagtcatcat gggggatttt tcattcttag ctttcagtg gtttgttcc               2149
```

```
<210> 13
<211> 1473
<212> DNA
<213> Homo Sapiens

<400> 13
gcagaggaga atgtcagatg ctcagctcgg tccctccgc ctgacgctcc tctctgtctc      60
```

```
agccaggact ggtttctgta agaaacagca ggagctgtgg cagcggcgaa aggaagcggc      120
tgaggcgctt ggaacccgaa aagtctcggt gctcctggct acctcgcaca gcggtgcccg      180
cccggccgtc agtaccatgg acagcagcgc tgcccccacg aacgccagca attgcactga      240
tgccttggcg tactcaagtt gctccccagc acccagcccc ggttcctggg tcaacttgtc      300
ccacttagat ggcgacctgt ccgacccatg cggtccgaac cgcaccgacc tgggcgggag      360
agacagcctg tgccctccaa ccggcagtcc ctccatgatc acggccatca cgatcatggc      420
cctctactcc atcgtgtgcg tggtggggct cttcggaaac ttcctggtca tgtatgtgat      480
tgtcagatac accaagatga agactgccac caacatctac attttcaacc ttgctctggc      540
agatgcctta gccaccagta ccctgccctt ccagagtgtg aattacctaa tgggaacatg      600
gccatttgga accatccttt gcaagatagt gatctccata gattactata acatgttcac      660
cagcatattc accctctgca ccatgagtgt tgatcgatac attgcagtct gccacctgt      720
caaggcctta gatttccgta ctccccgaaa tgccaaaatt atcaatgtct gcaactggat      780
cctctcttca gccattggtc ttcctgtaat gttcatagct acaacaaat acaggcaagg      840
ttccatagat tgtacactaa cattctctca tccaacctgg tactgggaaa acctgctgaa      900
gatctgtgtt ttcatcttcg ccttcattat gccagtgctc atcattaccg tgtgctatgg      960
actgatgatc ttgcgcctca gagtgtccg catgctctct ggctccaaag aaaaggacag     1020
gaatcttcga aggatcacca ggatggtgct ggtggtggtg ctgtgttca tcgtctgctg     1080
gactcccatt cacatttacg tcatcattaa agccttggtt acaatcccag aaactacgtt     1140
ccagactgtt tcttggcact ctgcattgc tctaggttac acaaacagct gcctcaaccc     1200
agtcctttat gcatttctgg atgaaaactt caaacgatgc ttcagagagt tctgtatccc     1260
aacctcttcc aacattgagc aacaaaactc cactcgaatt cgtcagaaca ctagagacca     1320
cccctccacg gccaatacag tggatagaac taatcatcag gtacgcagtc tctagaatta     1380
ggtatatcta ctggggatga cataaaaatt ataaggcttt gtgctaaact aggagtttaa     1440
tccattatag aggatgagaa tggagggaag ctt                                  1473
```

```
<210> 14
<211> 28
<212> DNA
<213> Homo Sapiens

<220>
<223> Primer

<400> 14
ggtactggga aaacctgctg aagatctg                                          28


<210> 15
<211> 28
<212> DNA
<213> Homo Sapiens

<220>
<223> Primer

<400> 15
ggtctctagt gttctgacga attcgagt                                          28


<210> 16
<211> 12
<212> PRT
<213> Homo Sapiens

<220>
<223> Peptide fragment

<400> 16
Leu Glu Asn Leu Glu Ala Glu Thr Ala Pro Leu Pro
```

```
<210> 17
<211> 13
<212> DNA
<213> Homo Sapiens

<400> 17
atacaccaag atg                                                          13


<210> 18
<211> 453
<212> DNA
<213> Homo Sapiens

<400> 18
ctagaaaatc tggaagcaga aactgctccg ttgccctaac agggtctcat gccattccga      60
ccttcaccaa gcttagaagc caccatgtat gtggaagcag gttgcttcaa gaatgtgtag     120
gaggctctaa ttctctagga aagtgcctgc ttttaggtca tccaacctct ttcctctctg     180
gccactctgc tctgcacatt agagggacag ccaaaagtaa gtggagcatt tggaaggaaa     240
ggaatatacc acaccgagga gtccagtttg tgcaagacac ccagtggaac caaaacccat     300
cgtggtatgt gaattgaagt catcataaaa ggtgaccctt ctgtctgtaa gattttattt     360
tcaagcaaat atttatgacc tcaacaaaga agaaccatct tttgttaagt tcaccgtagt     420
aacacataaa gtaaatgcta cctctgatca aag                                  453


<210> 19
<211> 30
<212> DNA
<213> Homo Sapiens

<220>
<223> Primer

<400> 19
ggtactggga aaacctgctg aagatctgtg                                       30


<210> 20
<211> 27
<212> DNA
<213> Homo Sapiens

<220>
<223> Primer

<400> 20
catccatgac cacagtgggc aaggcac                                          27


<210> 21
<211> 910
<212> DNA
<213> Homo Sapiens

<220>
<221> misc_feature
<222> (1)...(910)
<223> n = A,T,C or G
```

```
<400> 21
tggtgctggt ggtggtggct gtgttcatcg tctgctggac tcccattcac atttacgtca        60
tcattaaagc cttggttaca atcccagaaa ctacgttcca gactgtttct tggcacttct       120
gcattgctct aggttacaca aacagctgcc tcaacccagt cctttatgca tttctggatg       180
aaaacttcaa acgatgcttc agagagttct gtatcccaac ctcttccaac attgagcaac       240
aaaactccac tcgaattcgt cagaacacta gagaccaccc ctccacggcc aatacagtgg       300
atagaactaa tcatcaggta cgcagtctct agaattaggt atatctactg gggatgacat       360
aaaaattata aggctttgtg ctaaactagg agtttaatcc attatagagg atgagaatgg       420
aggaagggaa agcaaattgt ggtttaaggg ttaaagaaga ggtttgtata taaactgggg       480
tcctttaaat ttgcctgtac atattcatta aggtttaagg atccccaatg ggnaaaacca       540
tggaactttt caaaatacct tttttatggc ctttactttt atgcaaaatt tatgacttta       600
gcacattata gaaataattc tgatctagaa tccttttcat tttccccaga attattatat       660
aattcataga tgttctgcaa tacccctctt atttctcaaa agccagtctt gctctggttt       720
ctggattaaa gagagagggt gagtgccttg cccactgtgg tcatggatgc aagatattca       780
cagaaaatta gcatcataga aaaaaaannn aaaaaaaaaa aaaaaaaanc atgtcggccg       840
cctcggccaa acatcgggtc gagcatgcat ctagggcggc caattccgcc cctctccccc       900
ccngcnnttt                                                             910


<210> 22
<211> 225
<212> DNA
<213> Homo Sapiens


<220>
<221> misc_feature
<222> (1)...(225)
<223> n = A,T,C or G


<400> 22
ggaagggaaa gcaaattgtg gtttaagggt taaagaagag gtttgtatat aaactggggt        60
cctttaaatt tgcctgtaca tattcattaa ggtttaagga tccccaatgg gnaaaaccat       120
ggaacttttc aaaatacctt ttttatggcc tttactttta tgcaaaattt atgactttag       180
cacattatag aaataattct gatctagaat ccttttcatt ttccc                      225


<210> 23
<211> 1670
<212> DNA
<213> Homo Sapiens


<220>
<221> misc_feature
<222> (1)...(1670)
<223> n = A,T,C or G


<400> 23
atacaccaag atgaagactg ccaccaacat ctacattttc aaccttgctc tggcagatgc        60
cttagccacc agtaccctgc ccttccagag tgtgaattac ctaatgggaa catggccatt       120
tggaaccatc ctttgcaaga tagtgatctc catagattac tataacatgt tcaccagcat       180
attcaccctc tgcaccatga gtgttgatcg atacattgca gtctgccacc ctgtcaaggc       240
cttagatttc cgtactcccc gaaatgccaa aattatcaat gtctgcaact ggatcctctc       300
ttcagccatt ggtcttcctg taatgttcat agctacaaca aaatacaggc aaggttccat       360
agattgtaca ctaacattct ctcatccaac ctggtactgg aaaacctgc tgaagatctg       420
tgttttcatc ttcgccttca ttatgccagt gctcatcatt accgtgtgct atggactgat       480
gatcttgcgc ctcaagagtg tccgcatgct ctctggctcc aaagaaaagg acaggaatct       540
tcgaaggatc accaggatgg tgctggtggt ggtggctgtg ttcatcgtct gctggactcc       600
cattcacatt tacgtcatca ttaaagcctt ggttacaatc ccagaaacta cgttccagac       660
tgtttcttgg cacttctgca ttgctctagg ttacacaaac agctgcctca acccagtcct       720
```

```
ttatgcattt ctggatgaaa acttcaaacg atgcttcaga gagttctgta tcccaacctc      780
ttccaacatt gagcaacaaa actccactcg aattcgtcag aacactagag accacccctc      840
cacggccaat acagtggata gaactaatca tcaggtacgc agtctctaga attaggtata      900
tctactgggg atgacataaa aattataagg ctttgtgcta aactaggagt ttaatccatt      960
atagaggatg agaatggagg gaagggaaag caaattgtgg tttaagggtt aaagaagagg     1020
tttgtatata aactggggtc ctttaaattt gcctgtacat attcattaag gtttaaggat     1080
ccccaatggg naaaaccatg gaactttttca aaataccttt tttatggcct ttacttttat     1140
gcaaaattta tgactttagc acattataga aataattctg atctagaatc cttttcattt     1200
tccccagaat tattatataa ttcatagatg ttctgcaata cccctcttat ttctcaaaag     1260
ccagtcttgc tctggtttct ggattaaaga gagagggtga gtgccttgcc cactgtggtc     1320
atggatgcaa gatattcaca gaaaattagc atcatagaaa aaaaannnaa aaaaaaaaaa     1380
aaaaaancat gtcggccgcc tcggccaaac atcgggtcga gcatgcatct agggcggcca     1440
attccgcccc tctcccccc ngcnntttcc acaccgagga gtccagtttg tgcaagacac      1500
ccagcggaac caaaacccat cgtggtatgt gaatcgaagt catcataaaa ggtgacccctt     1560
ctgtctgtaa gattttaatt taagcatata tttatgacct caacaaagac gaaccatctt     1620
ttgttaattc accgtagtaa cacataaagt tatgctacct ctgatcaaag              1670
```

<210> 24
<211> 25
<212> DNA
<213> Homo Sapiens

<220>
<223> Primer

<400> 24
gaatccttttt cattttcccc agaat   25

<210> 25
<211> 23
<212> DNA
<213> Homo Sapiens

<220>
<223> Primer

<400> 25
aaccagagca agactggctt ttg   23

<210> 26
<211> 39
<212> DNA
<213> Homo Sapiens

<220>
<223> Primer

<400> 26
ataattcata gatgttgctg caataccccct cttatttct   39

<210> 27
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial

<400> 27
aggtcgtgta ctgtcagtca   20

<210> 28
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial

<400> 28
acgtggtgaa ctgccagtga   20

<210> 29
<211> 5
<212> PRT
<213> Artificial Sequence

                                    /

<220>
<223> Opioid polypeptide

<221> VARIANT
<222> 2
<223> Xaa = D-Alanine

<221> VARIANT
<222> 4
<223> Xaa = N-methylphenylanine

<221> VARIANT
<222> 5
<223> Xaa = Gly(ol)

<400> 29
Tyr Xaa Gly Xaa Xaa
 1   5